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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/510,652	02/22/2000	Ralf Bohnke	450117-02428	1553

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[REDACTED] EXAMINER

DEPPE, BETSY LEE

ART UNIT	PAPER NUMBER
2634	10

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	09/510,652	Applicant(s)	BOHNKE ET AL.
Examiner	Betsy L. Deppe	Art Unit	2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
5) Claim(s) ____ is/are allowed.
6) Claim(s) 1-26 is/are rejected.
7) Claim(s) ____ is/are objected to.
8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
10) The drawing(s) filed on 22 February 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because the elements in Figure 1 should be labeled so that one viewing the drawings may understand the subject matter of the claimed invention without referring to the detailed description. Correction is required.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it contains the form and legal phraseology often used in patent claims (e.g. "comprises" and "means").

Furthermore, "(Figure 6)" on the last line should be deleted. Correction is required. See MPEP § 608.01(b).

Claim Objections

5. The claims are objected to because they lack a proper introduction. The present Office practice is to insist that each claim must be the object of a sentence starting with "I (or we) claim," "The invention claimed is" or the equivalent. See MPEP § 608.01(m).

6. The claims are objected to because of the following informalities:
 - a. on line 1 of claims 1-26, the first word of each claim should be "A" (for example, in claim 1, "Receiving apparatus" should be "A receiving apparatus");
 - b. claim 1 lacks a transition word/phrase, e.g. "comprising" or "consisting of" between the preamble and the elements of the claim;
 - c. in claim 1, line 4, "phase shifted" should be "phase-shifted";
 - d. in claim 3, line 3, the two occurrences of "phase shifted" should be "phase-shifted";
 - e. in claim 10, line 5, "to" should be inserted before "a gap detection means" to clarify that the output signal is supplied to both the "peak threshold detection means" and the "gap detection means"
 - f. in claim 14, line 4, "phase shifted" should be "phase-shifted";
 - g. in claim 16, line 4, the two occurrences of "phase shifted" should be "phase-shifted"; and

h. in claim 19, line 4, a comma should be inserted after the first occurrence of "step."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. With regard to claims 1-26, it is unclear whether there are two repetition patterns or at least two repetition patterns in the reference symbol. Although claim 1, line 4 and claim 14, line 3 recites "at least two repetition patterns", "the other repetition pattern" in claim 1, line 5, claim 3, line 4, claim 14, lines 4-5 and claim 16, line 5 suggests that there are only two repetition patterns. Claim 1, line 9, claim 4, line 4, claim 14, line 7 and claim 17, line 6 recite "said two repetition patterns."

10. Claim 4 recites the limitation "the phase change information" in line 4. There is insufficient antecedent basis for this limitation in the claim.

11. In claim 5, the relationship between the synchronising means in claim 1, line 6-10 and the detection means in claim 5, line 6 is unclear. It is unclear whether the "detection means" is part of the synchronising means or if it is external to the synchronising means.

12. Claim 10 recites the limitation "said detection means" in lines 4 or 6. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 10 recites the limitation "said cross correlation peak detected by said cross correlation means" in line 5. There is insufficient antecedent basis for this limitation in the claim since the preceding claims do not recite a cross correlation means that detects a cross correlation peak.

14. Claim 17 recites the limitation "the phase change information" in line 4. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 23 recites the limitation "said detection step" in line 4. There is insufficient antecedent basis for this limitation in the claim.

16. In claim 23, it is unclear if the peak detection step and the gap detection step on lines 4-5) are performed simultaneously or sequentially/consecutively.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 1-4 and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ballarin et al. (EP 0 702 467 A1, cited in the IDS filed February 22, 2000, Paper No. 4). Ballarin et al. discloses a receiving means and a synchronising means comprising a cross correlation means (30A) wherein there are at least two repetition patterns (AB and

CD) whereby one of the repetition patterns is phase-shifted in relation to another repetition pattern. (See Figures 1, 2 and 4; page 2, lines 2-13; and page 3, lines 3-24 and 29-51)

19. Claims 1-5 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergmans et al. (WO 98/10421). Bergmans et al. discloses a receiving means and a synchronising means comprising a cross correlation means (3 and 8) wherein there are at least two repetition patterns (P and P') whereby one of the repetition patterns is phase-shifted in relation to another repetition pattern. (See Figures 2 and 3; page 3, line 34 – page 4, line 2; page 5, line 25 – page 7, line 19; and page 8, lines 13)

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 5, 8, 9, 18, 21 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Ballarin et al.

22. With regard to claims 5 and 18, Ballarin et al. discloses the claimed invention except for a correlation length corresponding to the length of one repetition pattern. Since Ballarin et al. discloses that the reference sequence may be short to restrict the necessary hardware (see page 3, lines 52-53), it would have been obvious to one of

ordinary skill in the art at the time the invention was made to use a window length of one repetition pattern in order to achieve get more precise synchronization while conserving hardware.

23. With regard to claims 8 and 21, Ballarin et al. discloses the claimed invention except for a cross correlation window length corresponding to the length of two repetition patterns. Since Ballarin et al. discloses that the reference sequence may be short to restrict the necessary hardware (see page 3, lines 52-53), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a window length of two repetition patterns in order to achieve get more precise synchronization while conserving hardware.

24. With respect to claims 9 and 22, Figure 4 of Ballarin et al. teaches using the conjugate of the expected pattern in the cross correlation means.

25. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ballarin et al. as applied to claims 5 and 18, respectively, above, and further in view of Nakajima et al. (US Patent No. 5,005,144). Ballarin et al. discloses the claimed invention except for an averaging means for smoothing an output signal. Nakajima et al. discloses an averaging means (36) using a moving average method to smooth a correlation signal. (See Figure 3 and column 4, lines 22-58)

It would have been obvious to one of ordinary skill in the art at the time the invention was made add an averaging means to Ballarin in order to improve system performance.

Allowable Subject Matter

26. Claims 6, 10-13, 19 and 23-26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sabel (US Patent No. 5,539,751) discloses a synchronization circuit that involves a repetitive synchronization pattern and cross correlation of the repetitive synchronization pattern. Williams (US Patent No. 5,629,639) discloses a correlation peak detector. Ballarin et al. (US Patent No. 6,009,125) is an English language equivalent of Ballarin et al. (EP 0 702 467 A1, cited in the IDS filed February 22, 2000, Paper No. 4). Suzuki (US Patent No. 6,088,406) discloses a receiver with a correlation means, moving average calculating circuit and a peak determination circuit. Dolle et al. (US Patent No. 6,160,821) discloses using a plurality of repetition patterns for synchronization whereby one of the repetition patterns is phase-shifted in relation to the other repetition pattern.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (703) 305-4960. The examiner can normally be reached on Monday - Wednesday (8:30-4:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Betsy L. Deppe
Primary Examiner
Art Unit 2634
April 9, 2003